

### Remarks

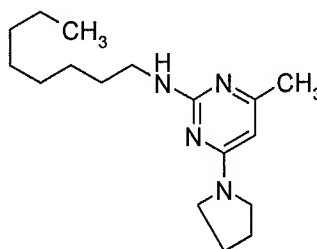
Claims 22, 24, 26, 29, 31 were pending; claim 26 was withdrawn.

Claims 22, 24, 26, 29, 31 are cancelled.

Claims 43-53 are new.

The application now contains claims 43-53.

The elected species, PY44, is encompassed by claims 43-48. The material of claims 49-53 is presently withdrawn by the Examiner. Claim 43 contains both the elected species and withdrawn material.



PY44

A number of enablement and potential new matter issues are raised in the present Action. Applicants have rewritten the claims in a manner that more readily allows for a detailed discussion of support for the instant claims. In an effort to remedy the lack of clarity in Applicants' previous reply, Applicants' agent has been quite explicit in providing basis for the instant claims and apologizes to the Examiner for any delay caused by the previous submission.

New claim 43 is supported by original claims 1 and 15, which were rewritten in the preliminary amendment as claims 22 and 36, which disclose the treatment of plastic surfaces with compounds of formula 1. Support for the specific values for the variables can be found in the specification as follows:

**R<sub>1</sub>** as methyl is found on page 1 line 8 wherein **R<sub>1</sub>** can be C<sub>1</sub>-C<sub>20</sub>alkyl and page 1 line 23 wherein C<sub>1</sub>-C<sub>20</sub>alkyl can be methyl

**R<sub>2</sub>** as hydrogen or straight chain C<sub>3</sub>-C<sub>8</sub>alkyl is found on page 2 line 29 and page 2 line 10

**R<sub>3</sub>** and **R<sub>5</sub>** as hydrogen is found on page 1 line 12

**R<sub>4</sub>** as butyl, amyl, hexyl, heptyl, octyl, nonyl, decyl, undecyl or dodecyl is found on page 1 line 13 and in the paragraph that bridges pages 1 and 2

**R<sub>6</sub>** as C<sub>1</sub>-C<sub>20</sub>alkyl, di-C<sub>1</sub>-C<sub>6</sub>alkylamino-C<sub>1</sub>-C<sub>6</sub>alkyl, mono-C<sub>1</sub>-C<sub>6</sub>alkylamino-C<sub>1</sub>-C<sub>6</sub>alkyl, or -(CH<sub>2</sub>)<sub>2</sub>-(O-(CH<sub>2</sub>)<sub>2</sub>)<sub>1-2</sub>-NH<sub>2</sub> is found on page 3 lines 2-4

and either of **R<sub>3</sub> and R<sub>4</sub>** or **R<sub>5</sub> and R<sub>6</sub>** together as a pyrrolidine, piperidine or morpholine ring is found on page 1, lines 19 and 20.

For support of the specific combination of variables in claim 43 wherein

R<sub>1</sub> is methyl,

R<sub>2</sub> is hydrogen,

R<sub>3</sub> is hydrogen,

R<sub>4</sub> is butyl, amyl, hexyl, heptyl, octyl, nonyl, decyl, undecyl or dodecyl and

R<sub>5</sub> and R<sub>6</sub> together form a pyrrolidine, piperidine or morpholine ring;

or the positional isomer wherein

R<sub>1</sub> is methyl,

R<sub>2</sub> is hydrogen,

R<sub>3</sub> and R<sub>4</sub> together form a pyrrolidine, piperidine or morpholine ring,

R<sub>5</sub> is hydrogen and

R<sub>6</sub> is butyl, amyl, hexyl, heptyl, octyl, nonyl, decyl, undecyl or dodecyl,

Applicants respectfully point to the embodiments described in the paragraph bridging pages 3 and 4 and to the third structure of the especially preferred compounds on page 4 which exemplifies R<sub>1</sub> as methyl, R<sub>2</sub> as hydrogen, R<sub>3</sub> as hydrogen, R<sub>4</sub> as C<sub>1</sub>-C<sub>20</sub>alkyl, specifically octyl, and R<sub>5</sub> and R<sub>6</sub> as pyrrolidine. Applicants respectfully submit that the above two combinations of variables represent positional isomers of the third structure on page 4 wherein the only variations are in the length of the alkyl chain present either at R<sub>4</sub> or R<sub>6</sub> and minor variations regarding the cyclic amine at R<sub>3</sub> and R<sub>4</sub> or R<sub>5</sub> and R<sub>6</sub>.

For support of the specific combination of variables in claim 43 wherein

R<sub>1</sub> is methyl,

R<sub>2</sub> is C<sub>1</sub>-C<sub>12</sub>alkyl,

R<sub>3</sub> and R<sub>5</sub> are hydrogen,

R<sub>4</sub> is C<sub>1</sub>-C<sub>20</sub>alkyl and

R<sub>6</sub> is di-C<sub>1</sub>-C<sub>6</sub>alkylamino-C<sub>1</sub>-C<sub>6</sub>alkyl, mono-C<sub>1</sub>-C<sub>6</sub>alkylamino-C<sub>1</sub>-C<sub>6</sub>alkyl, or -(CH<sub>2</sub>)<sub>2</sub>-(O-(CH<sub>2</sub>)<sub>2</sub>)<sub>1-2</sub>-NH<sub>2</sub>

Applicants respectfully point to the embodiments described in the paragraph bridging pages 3 and 4 and to the fourth structure of the especially preferred compounds on page 4 which exemplifies R<sub>1</sub> as methyl, R<sub>2</sub> as C<sub>1</sub>-C<sub>12</sub>alkyl specifically hexyl, R<sub>3</sub> and R<sub>5</sub> as hydrogen, R<sub>4</sub> as C<sub>1</sub>-C<sub>20</sub>alkyl, specifically octyl and R<sub>6</sub> as -(CH<sub>2</sub>)<sub>2</sub>-(O-(CH<sub>2</sub>)<sub>2</sub>)<sub>2</sub>-NH<sub>2</sub>. Applicants respectfully submit that the above combination represent compounds similar to the fourth structure on page 4 wherein the only variations are in the length of the alkyl chain of R<sub>4</sub> and minor variations regarding the heteroatoms present in the alkyl chain of the amine at R<sub>6</sub>.

Claims 44 and 50 are fully supported by claim 43. Additional support for claims 45-49 is found in the specification on page 1 lines 23-25. Additional support for claims 51-55 is found in the specification on page 2 line 29 and page 2 lines 10-11.

No new matter is added.

## Rejections

Applicants thank the Examiner for her helpful comments made during the phone conversation of October 28 helping Applicants to more fully understand the basis of the instant 35 USC 112 rejections.

The previously submitted claims were rejected under 35 USC 112 first paragraph for insufficient written description as the construction of the previously submitted claims was not supported by the originally filed specification or claims. Applicants respectfully submit that the instant claims are clearly derived from the original specification and claims as discussed above.

The previously submitted claims were rejected under 35 USC 112 first paragraph for lack of enablement for compounds other than the five species prepared in the instant examples, i.e., PY 5, 8, 9, 44 and 55. Applicants respectfully point out that the instantly amended claims are limited to a relatively small number of homologues and near homologues of PY 44 and PY 55. Regarding the preparation of the compounds, Applicants respectfully submit that each of the compounds found in claim 43 can be readily prepared by the general procedures found on pages 11 and 12 of the specification and simple variations of the procedures of Example 1 and 7-9 (related to the prep of PY 44) and 10-12 (related to the prep of PY 55).

For Example, any of the compounds of the first two isomeric groupings of variables found in claim 43, i.e., the compounds in claim 44, can be prepared by the process of page 11 wherein commercially available 2,4-dichloro-6-methylpyrimidine is reacted with a commercially available alkyl amine and commercially available pyrrolidine, piperidine or morpholine. This can be accomplished either by sequential reaction with one amine followed by reaction with another amine, or by the reaction of 2,4-dichloro-6-methylpyrimidine with a mixture of the two amines. Applicants respectfully take the position that while there may be uncertainty associated with chemical reactions, one skilled in the art would find it extremely likely that such similar amines would react with the same chlorinated substrate in an analogous similar manner.

Any of the compounds of the third grouping of variables found in claim 43, i.e., the compounds in claim 49, can be prepared by the process pictured on page 12 wherein similar and readily available, keto esters are reacted with similar and readily available guanidines in a first step to provide an intermediate which is reacted in a standard manner with a common amine in the final step.

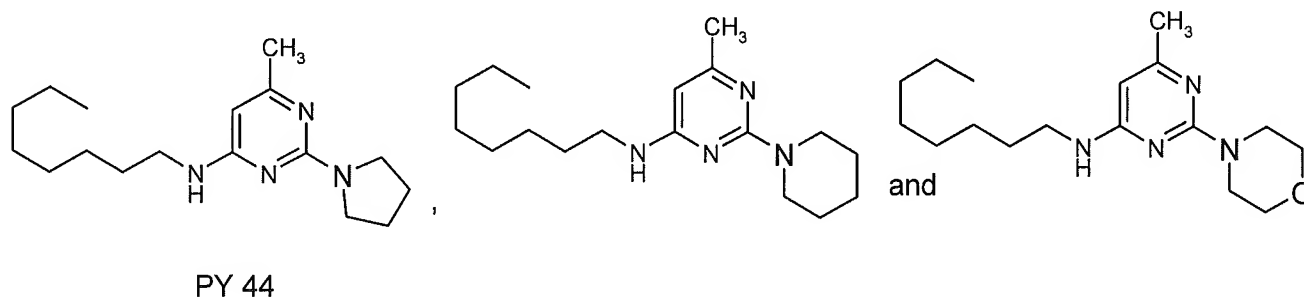
Applicants respectfully submit that the similarity of the compounds found in claim 43 to exemplified compounds PY 44 and 55, the conceptually simple nature of the synthetic process and the ready availability of the starting materials makes their preparation obvious in light of the instant disclosure to any one skilled in the art.

Regarding which compounds one would expect antimicrobial activity from, Applicants respectfully point out that activity for a large number of compounds other than PY 5, 8, 9, 44 and 55 is reported in the table on page 25-27. Applicants note that a certain amount of activity was observed for all compounds, but certain compounds were more efficient and broad based in their action. Applicants respectfully point out that all of the compounds in the instant claims are very closely related to PY 44 and PY 55, two of the most effective compounds in the table on page 25-27, which are also two of the four especially preferred compounds on page 4, i.e., the third and fourth formula of page. (PY 44 and PY 55 are the subject of claims 48 and 53).

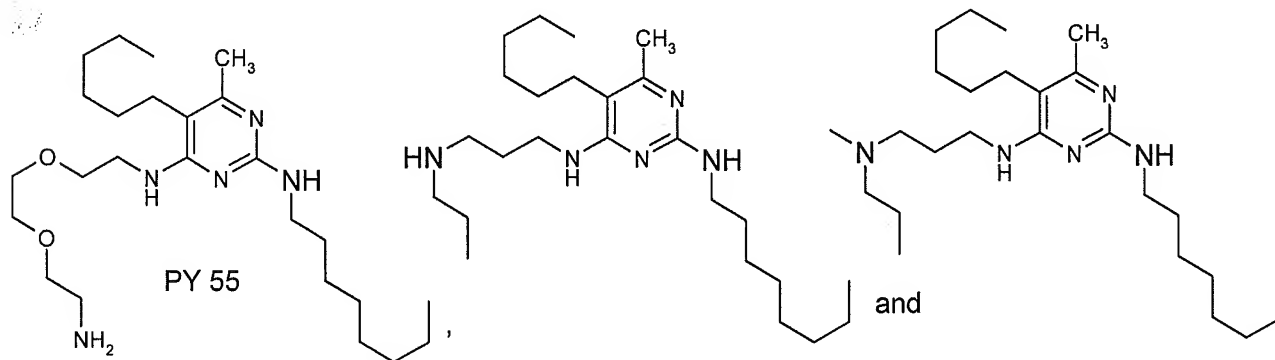
Thus, Applicants respectfully submit that not only would one expect antimicrobial activity from each of the compounds found in the instant claims, but based on their similarity to PY 44 and PY 55, one would expect very good antimicrobial activity.

The previously submitted claims were also rejected under 35 USC 112 first paragraph because it was not apparent to the Examiner that Applicants had possession of the claimed invention at the time of filing. Applicants again respectfully note that all of the compounds in the instant claims are very closely related to two of the four especially preferred compounds on page 4, i.e., the third and fourth formula of page 4 which are PY 44 and PY 55, two of the most effective compounds in the table on page 25-27 and that PY 44 and PY 55 are the subject of claims 48 and 53. Applicants respectfully submit that the instant claims can therefore be regarded as directed to what would be considered significant embodiments of the invention.

While originally filing for broader protection than is presently found in the instant claims, Applicants, for a variety of reasons, have focused more clearly on specific embodiments of the invention. That is, the antimicrobial protection of plastic surfaces with a select few and highly active methylene homologues and positional isomers of

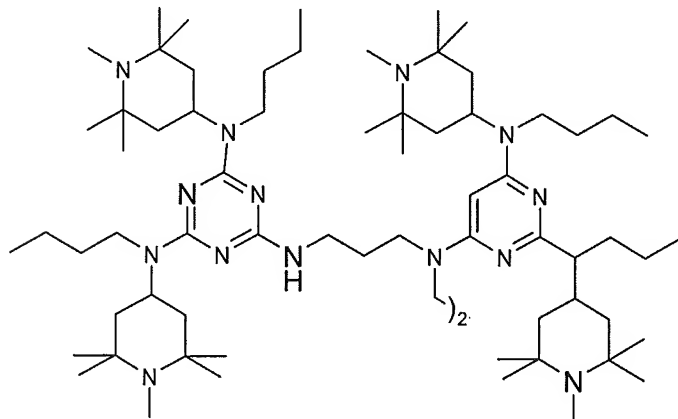


and a select few and highly active methylene homologues of



In selecting these compounds for the treatment of plastic surfaces, Applicants have chosen extremely active and easily prepared materials. The materials must also be compatible with plastics. Applicants point out that, aside from being active as antimicrobials, the claimed compounds are amino substituted triazines and would be expected to be compatible with plastic applications as they are similar in chemical structure to compounds such as triazine based hindered amine light stabilizers

which are frequently employed in plastics and coatings formulations, for example CHIMASORB 119, the condensate of 2-chloro-4, 6-di (4-n- butylamino-1, 2,2,6,6-pentamethylpiperidyl)-1,3,5-triazine and 1,2-bis (3-aminopropylamino)- ethane:



Applicants therefore submit that one familiar with formulating plastics and coatings would have no difficulty in incorporating the compounds of the instant claims into the plastics and plastic articles in the paragraph bridging pages 15 and 16 and using conventional processing techniques or incorporating the compounds by standard dispersion or dissolution techniques into surface coating compositions (bottom of page 16) and expect success given the unexpected potency against microbes demonstrated by the selected compounds relative to other similar compounds as discussed in Applicants' previous response.

Applicants respectfully submit that the 35 USC 112 first paragraph rejections are addressed and are overcome and kindly ask that the rejections be withdrawn and that claims 44-48 be found allowable. 43-48. Applicants further kindly ask that upon finding claim 44 allowable, which is the elected material found in claim 43, that the Examiner rejoin the non-elected material of claim 43 and the material of claims 49-53 and find those claims allowable as well. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

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Respectfully submitted,

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